**Assignment No. 1**

**Data Structure and Algorithms Due Date: 08-10-2023**

Make the two folder of the the given code at

“LinkList1” & “LinkList2”

**Q No.1**

Incorporate two functions, namely "bubble\_sort" and "insert\_sort," into the "**LinkList1**" folder code suitably within the header and .cpp files.

1. The "bubble\_sort" function accepts a linked list as a parameter, applies the bubble sort algorithm, and returns the linked list with its elements rearranged in ascending order.
2. The "insert\_sort" function accepts a linked list as a parameter, applies the insert sort algorithm, and returns the linked list with its elements rearranged in ascending order.
3. Demonstrate the above functionality in main function with Ineger data type.

**Q No.2**

Incorporate following into the "**LinkList2**" folder code suitably within the header and .cpp files.

1. Write a class named “Student” having the following attributes

Name, Matric\_Marks, FSc\_Marks, Test\_marks, Interview\_Marks, aggregate\_score.

Aggregate\_score is basd on formula which calculate score from 100 as:

40% FSc\_Marks+10%Matric\_Marks+30 Interview\_Marks+20 Test\_Marks

Write all appropriate setters and getters functions of “Student” class

1. Modify the function “ void AddElement(T a), function Link List

Function should insert the student object in position of descending order of the “aggregate\_score

1. Revise the findElement(T a) function to conduct a search for an object/element using the binary search algorithm.
2. Create a function called Merit\_List that takes an integer parameter, "Number of the candidates," and prints the aggregate scores along with names of the top students

Create a Linked List to facilitate the Main Library of GCU to maintains library shop stock using link list. Provide below facility in program   
1) Insert book details  (at specific location)  
2) Delete Book Detail (from specific location)  
3) Update Book Detail

4) Facility to search book

5)Display all books details  with following information  
also take below information for particular book   
1) Book Author   
2) Book Title   
3) 4) Book Price

**Bounce-Task**

* sort the books by their price

First three students will graded one bounce mark in final Exam.

***Note:*** *Plagiarism will be check through Turnitin Software. Plagiarism code will credit zero marks*